

- 1 $\frac{d}{dx}(a^x)$
- 2 $\frac{d}{dx} \sec^{-1} x$
- 3 $\int \frac{1}{\sqrt{1-x^2}} dx$
- 4 $\int u dv =$
- 5 $\int a^x dx$

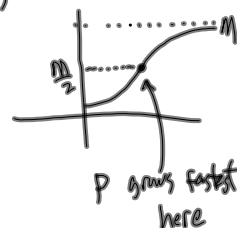
Mar 16-8:56 AM

Review 19 Logistic Growth

$$\frac{dP}{dt} = k P (M - P)$$

$$P = \frac{M}{1 + A e^{-kMt}}$$

$$A = \frac{M - Y_0}{Y_0}$$



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Ex 1. $\frac{dy}{dt} = 0.1 y (50 - y)$

a) $\lim_{t \rightarrow \infty} y(t) = 50$

b) what is y when it is growing fastest?

c) How fast is y growing when it is growing fastest? $0.1(25)(25)$
62.5

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Ex 2 $\frac{dP}{dt} = 0.1 P (2 - \frac{P}{100})$

what is the carrying capacity? 200

$$= 0.1 P (200 - P) \frac{1}{100}$$

$$= .001 P (200 - P)$$

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